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# A THEORY OF INSTINCTIVE INFORMATION SHARING

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## Abstract

*Recent psychology research suggests that people have an innate tendency to share information. This brings a new perspective to existing information sharing research. We elaborated a new theory with the central construct of need for information sharing. This need for information sharing is a measure of an individual's innate need to share information with others. We also developed measurement items for this construct and empirically tested it in a survey on sharing of information in forums. The measurement items show good reliability and validity. The new construct can help to explain people's intention to share information. The results support our new theory for information sharing behaviours.*

*Keywords: Information sharing, Online forums, Instinct, Innate behaviours.*

# 1 INTRODUCTION

Information sharing behaviours have been extensively studied in the literature (Bock et al. 2005; Constant et al. 1994; Kankanhalli et al. 2005; Wasko & Faraj 2005). Several perspectives have been adopted to study information sharing behaviours in organizations. These include social exchange theory (Kankanhalli et al. 2005), social capital theory (Kankanhalli et al. 2005; Wasko & Faraj 2005), personal belief and institutional structures (Bock et al. 2005), and prosocial transformation (Constant et al. 1994). Since most of the existing theories and models follow the utilitarian principle to evaluate human behaviours, the main determinants for information sharing behaviours are cost and benefit factors, and also contextual factors. There is an assumption that humans are rational and always try to maximize their own benefits.

Research in evolutionary and behavioural psychology has shed light that children, even very young children, have a biological inclination to share resources and useful information with others (Fehr et al. 2008; Wade 2009; Warneken & Tomasello 2006, 2009). With human's innate biological inclination to cooperate and share resources and information, the underlying principle of modern economics needs to be revisited (Eastwood 2010). Humans may not always be rational, but are cooperative by nature. People are generally inclined to share information and cooperate without explicit benefits involved. These principles actually give us "an evolutionary advantage rather than the tendency toward competitive individualism" (Anwar 2010; Eastwood 2010; Wade 2009). This cooperative nature suggests new directions for studying information sharing behaviours.

To explore the fundamental human nature towards information sharing behaviours, we propose a new theory to look at human's information sharing behaviours. We then develop measurement items for the central construct in this theory and examine the construct in an empirical study to establish its reliability and validity. Finally, we discuss the limitations and implications of the theory.

# 2 THEORY DEVELOPMENT

## 2.1 Social Exchange Theory

Information sharing behaviours are usually assumed to be intentional and benefit-oriented (Bock et al. 2005; Constant et al. 1994; Kankanhalli et al. 2005; Wasko & Faraj 2005). According to Social Exchange Theory, people are assumed to evaluate the costs and benefits before making the decision on whether to share information with others (Blau 1964; Emerson 1962; Homans 1958). During the social exchange process, costs can be either opportunity costs or actual loss of resources (Molm 1997). Examples of opportunity costs are the time and effort which could be used for other purposes (Kankanhalli et al. 2005; Markus 2001). During the social exchange, the contributor may also feel a loss of unique value or information that is exchanged with others. In this case, loss of knowledge power is an example of actual loss of resources (Davenport & Prusak 1998; Gray 2001).

During the social exchange process, benefits can be either extrinsic or intrinsic (Vallerand 1997). By sharing information with others, contributors may receive extrinsic benefits such as reciprocal benefits (Kankanhalli et al. 2005; Kollock 1999; Wasko & Faraj 2000), or a better image or reputation (Constant et al. 1994; Constant et al. 1996). They may also increase their confidence in their capability to provide useful information, which is a kind of intrinsic benefit (Constant et al. 1994; Constant et al. 1996).

## 2.2 Innate Sharing Behaviours

Cumulative empirical evolutionary and behavioural psychology studies suggest that far from being rational in evaluating economic cost and benefit, humans from a very young age are already cooperative in many circumstances (Brownell et al. 2009; Hay 1979; Moore 2009; Tomasello 2009).

We have a biological predisposition to “share resources with others and to inform others of things helpfully” (Warneken & Tomasello 2009, p. 397). For example, children voluntarily shared snacks when they perceived that the snacks were needed or wanted by others (Brownell et al. 2009). In another study, children 12 to 24 months old engaged in cooperative interchanges and shared objects with their parents (Hay 1979). In addition, studies have shown that people felt satisfied when sharing goodies with others (Fehr et al. 2008; Tricomi et al. 2010).

With regard to information, studies found that humans often engage in the free exchange of information based on the assumption that the exchange provides useful and helpful information to others even when they themselves do not gain any specific benefit for doing so (Warneken & Tomasello 2009). Thus, this is considered as a kind of instinctive or innate cooperation (Sperber & Wilson 1996). For example, in one study, when infants saw an adult looking for something, if they knew the location, they would point it to the adult (Liszkowski et al. 2006). Thus, the free sharing of information is a kind of innate behaviour, without any specific benefits to gain.

### **2.3 Definition of Instinct**

The concept of instinct seems to have originated in ancient times with attempts to define a clear-cut difference between humans and animals. Human behaviour was said to be governed by reasoning, and animal behaviours to depend upon instinct. The prescientific concept of instinct was based on any natural observations. It was developed by “the demands of philosophical systems based on supernatural conceptions of nature” (Beach 1955, p. 403). Although there are many opponents to the concept of instincts among psychologists, nowadays “the concept of instincts as complex, unlearned patterns of behaviour is generally accepted in clinical, social, and experimental psychology” (Beach 1955, p. 404). Instinctive behaviour is unlearned and differs from reflexes in that instincts depend on “the pattern or organization of the stimulus,” whereas “reflexes are elicited by stimulation of localized groups of sensory endings” (Beach 1955, p. 404; Lashley 1938). Examples of instinctive behaviour are: “homing of pigeons, migratory behaviour of fishes, web-weaving of spiders, dancing reactions of the honey-bee returning to the hive laden with nectar, and mating responses in domestic hens” (Beach 1955, p. 404).

### **2.4 Theory of Instinctive Information Sharing**

Cumulative experiments show that humans are by nature helpful and informative from a very young age (Fehr et al. 2008; Warneken & Tomasello 2006, 2007). Given the evidence, it is obvious that this information sharing behaviour is not a behaviour created by culture and/or socialization practices. It is unlearned at the early stage of life. Therefore, information sharing is an instinct of human beings.

This has its evolutionary root because we can also find instinctive information sharing behaviours in animals. For example, when bees find good sources of honey, they would “dance” in a certain style to share the information and the route to the honey sources to their peers so that others can also go there (Seeley 1995). Ants also have an instinct to communicate with their peers when they find food sources (Adler & Gordon 1992). These sharing behaviours are innate behaviours in nature.

However, instinctive information sharing behaviours also evolve during the process of growing up, as the instinct gets modified by environment and learning. People have social interactions and their behaviours may change accordingly. Social norms and culture also play a role to influence the behaviour. In one study, 3-year-old children shared more often if the recipients had shared with them previously (Olson & Spelke 2008). So children begin to learn whom to be nice to according to their own experiences with them. This concern for reciprocity also has deep evolutionary roots, as chimpanzees are also sensitive to reciprocity. In an experiment, chimpanzees reciprocated to help those who helped them before in fighting and accessing food (Melis et al. 2008). Although young children have not had much direct social communication with the outside world, they should have one to two years of experience of social interactions at home (Eisenberg et al. 2006; Rheingold et al. 1976). This may influence their information sharing behaviour to be more selective.

Through cultural transmission and social interaction with others, children also learn to behave according to their social norms. They also inform others to keep in line with norms that they are doing it wrongly and what the correct way to do it is (Rakoczy et al. 2008). In addition, in early childhood, infants behave mainly within their family and do not need to moderate their behaviours based on social norms because of their parents' supervision. During their middle childhood, when they are more autonomous to have social interaction with others, they start to consider whether the person they are sharing information with reciprocates or makes judgment based on social norms. Thus, social norms and culture are important factors influencing humans' behaviours (Warneken & Tomasello 2009).

Therefore, humans are born with an innate need for information sharing. We define a new construct, Need for Information Sharing, as the extent to which people are naturally inclined to share information. This instinctive need for information sharing is reshaped and evolves with socialization and other events in life. For example, humans may also follow the Social Exchange Theory discussed earlier to assess the costs and benefits when making decisions. These social and psychological theories still hold, and the Theory of Instinctive Information Sharing adds an evolutionary and biological perspective, by showing that our sharing behaviours are actually instinctive at the beginning. All the subsequent socialization may take in other factors, which then together influence human behaviours.

### 3 RESEARCH MODEL AND HYPOTHESES

In this section, we build a research model to apply the theory of instinctive information sharing and assess the new construct of Need for Information Sharing in a nomological network. According to the definition, need for information sharing reflects the natural inclination of a person to share information with others. This instinct would affect the way that a person thinks and behaves, which will appear as intention and behaviour. Therefore, we hypothesize that:

*H1. Need for information sharing is positively related to intention to share information.*

The theory of reasoned action posits that individual behaviour is driven by behavioural intentions (Fishbein & Ajzen 1975). In the information technology context, the technology acceptance model posits that an individual's intention to use the system affects actual system use (Davis et al. 1989; Venkatesh et al. 2003). In the information sharing context, if a person has behavioural intention to share information with others, he or she will reflect this in the behaviours. Thus, we hypothesize that:

*H2. Intention to share information is positively related to information sharing behaviour.*

Past research has shown the importance of costs and benefits in determining information sharing behaviours (Kankanhalli et al. 2005; Markus 2001). Out of the existing cost and benefit factors from the past literature, we selected four, loss of knowledge power, image, reciprocity and prosharing norms, for the purpose of testing the new construct of Need for Information Sharing in a nomological network. These are chosen mostly because they can be adapted to online forum context of our study. Other factors from the previous studies are excluded because they are mainly applicable in the organizational context.

Loss of knowledge power is the "perception of power and unique value lost" due to knowledge contribution (Gray 2001; Kankanhalli et al. 2005, p. 123). When sharing information with others, the contributors may lose their power or unique value when others also know the information (Gray 2001; Thibaut & Kelley 1986). This would affect the behavioural intention to share information. According to past research, one barrier to knowledge sharing is loss of power due to knowledge contribution (Davenport & Prusak 1998; Orlikowski 1993). Therefore, we hypothesize that:

*H3. Loss of knowledge power is negatively related to intention to share information.*

When sharing information with others, one can benefit from improved reputation. This is termed as image (Constant et al. 1996; Kollock 1999). It was found that people share their best practice in order to be recognized as experts by others (O'Dell & Grayson 1998). Therefore, we hypothesize that:

*H4. Image is positively related to intention to share information.*

Reciprocity is defined as the belief that current information sharing would lead to future request for information being met (Davenport & Prusak 1998). Past studies showed that people who share information online have reciprocity concerns such that they only share information when they believe that others will share information with them online (Wasko & Faraj 2000; Wasko & Faraj 2005). In an offline study, 3-year-old children shared more often if the recipients had shared previously (Olson & Spelke 2008). Researchers also found that reciprocity is positively related to electronic knowledge repository usage in organizations (Kankanhalli et al. 2005). For online information sharing, people would consider reciprocity as a benefit. Based on social exchange theory, this potential benefit would motivate people to share more information online. Therefore, we hypothesize that:

*H5. Reciprocity is positively related to intention to share information.*

Pro-sharing norms refer to “the prevalence of norms that are intended to facilitate” information sharing (Kankanhalli et al. 2005, p. 123; Nahapiet & Ghoshal 1998; Orlikowski 1993). According to this definition, when sharing norms are strong, people may be more willing to share information than in a low sharing norms condition. Therefore, we hypothesize that:

*H6. Pro-sharing norm is positively related to intention to share information.*

The research model is shown in Figure 1.

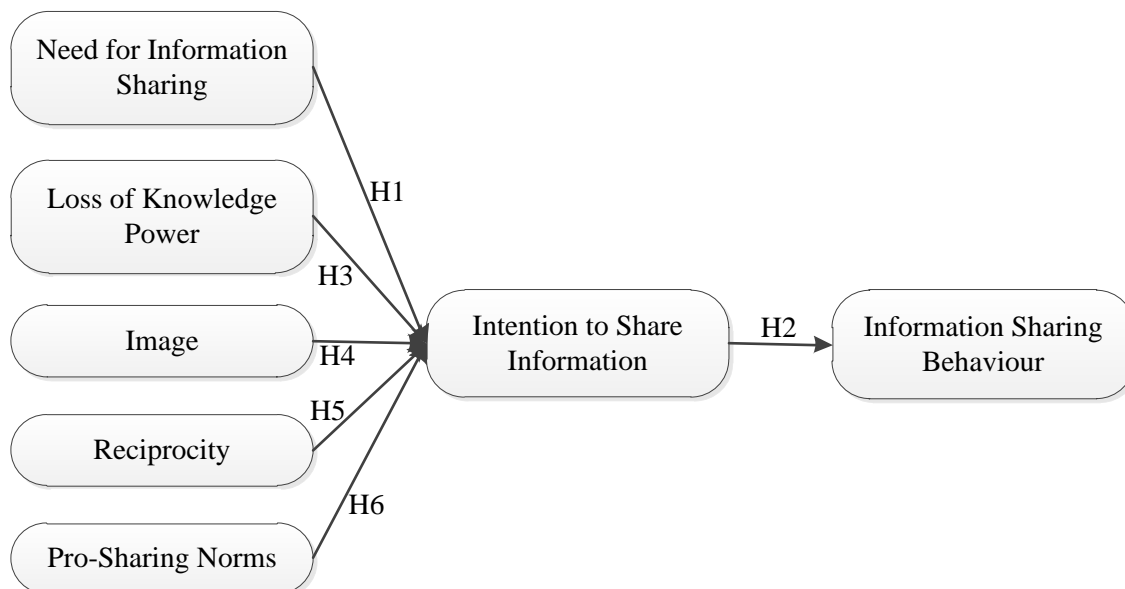


Figure 1. Research Model

## 4 RESEARCH METHODOLOGY

### 4.1 Instrument Development

In pursuit of the theory, we develop and validate an instrument to measure individuals' need for information sharing. We adapt and follow the instrument development and validation process from Churchill (1979) and Straub (1989) for our study.

#### 4.1.1 *Specify Domain of the Construct*

In order to specify the domain of the construct “need for information sharing”, we conducted an extensive literature review. After that, we identified the necessity for a new construct to measure human’s natural tendency to share information. Thus, we define the Need for Information Sharing as the extent to which people are naturally inclined to share information.

The concept of need for information sharing is distinguished from the “propensity to share information” construct, as used in other studies (Jarvenpaa & Staples 2000). Propensity to share information is “a personal norm reflecting the costs and benefits of sharing” (Jarvenpaa & Staples 2000, p. 135). Thus, it is part of pro-social transformation behaviours. However, need for information sharing is one’s natural inclination to share information, without any interaction with social activities. The boundaries of the two concepts need to be clear in order to develop appropriate items for the new construct.

#### 4.1.2 *Generate Sample of Items*

Next, we generated items to measure the need for information sharing based on its definition and by considering similar constructs measuring innate behaviours, such as need for cognition (Cacioppo & Petty 1982; Cacioppo et al. 1996; Cacioppo et al. 1984). We used techniques including literature reviews, focus groups, expert judges and pilot tests (Bearden & Netemeyer 1999; Churchill 1979).

The items for the other constructs were adapted from previous research to enhance validity (Stone 1978). Two questions for information sharing behaviour measured the frequency of actual information sharing behaviour. The other questions were measured using seven-point Likert scales anchored from “strongly disagree” to “strongly agree”. The survey items are in the appendix.

#### 4.1.3 *Assess Conceptual Validity*

We conducted the conceptual validation of constructs in three stages. First, we distributed the survey instrument to a number of information systems faculties and postgraduate students to assess if adequate items have been generated to cover the domain of the constructs. Second, we discussed the survey instrument with a number of undergraduate students to ensure that the questions generated make sense to potential respondents. Third, we carried out a sorting procedure (Moore & Benbasat 1991) for all the theoretical constructs. The sorting results were good. These steps ensured high content and conceptual validity of the constructs.

### 4.2 **Survey Administration**

We administered the survey to undergraduate students from various faculties in a large Asian university. University students were chosen as the target population in this study, because they are the main population using online information sharing portals, such as forums or social networks. The survey took about 15 minutes to complete. After clearing a few incomplete entries, we had 2599 responses. We used Partial Least Squares to analyse the data.

## 5 **DATA ANALYSIS**

### 5.1 **Purify Items**

In order to purify the new items for Need for Information Sharing, we randomly selected 300 responses to do a preliminary test. We did exploratory factor analysis and calculated Cronbach’s alpha to examine the item reliability. We then deleted items which did not load as expected. We continued this iterative process until all the items loaded as expected and the reliability was good. This eventually resulted in a 5-item scale to measure need for information sharing, as shown in the

appendix. This step is necessary to achieve a better measurement model. The items for the other constructs were adapted from previous research, so they were not included in this purification step.

## 5.2 Assess Psychometric Properties

After purification of the items for Need for Information Sharing, we tested against the other 2299 responses to assess the psychometric properties. The previous steps should produce a scale that has content validity and reliability, but they may not ensure the scale to have construct validity. Construct validity is defined as the extent to which a scale measures what it is supposed to measure (Cronbach & Meehl 1955; Shedish et al. 2002). We will examine internal consistency reliability, convergent validity, discriminant validity and predictive validity to assess the construct validity.

To assess the internal consistency reliability, we examine the Cronbach's alphas (see Table 1). All the Cronbach's alphas are larger than 0.70 (Nunnally & Bernstein 1994). This shows high internal consistency reliability in the measurement model. Convergent validity was assessed by examining composite reliability, item loadings and average variance extracted (AVE) from the measures (Hair et al. 2009). As shown in Table 1, composite reliability scores range from 0.88 to 0.93, which are higher than the recommended value of 0.70 (Chin 1998). AVE scores range from 0.60 to 0.87, which are above the acceptable value of 0.50 (Fornell & Larcker 1981). In addition, all the item loadings are significant at the level of 0.01 (see Table 2). Finally, discriminant validity was verified by examining the square root of the AVE (Fornell & Larcker 1981). The results shown in Table 3 confirm discriminant validity: the square root of the AVE for each construct is greater than the levels of the correlations involving the construct. Results of the inter-construct correlations in Table 2 also show that each construct shares larger variance with its own measures than with other measures.

With adequate psychometric properties in the measurement model, we examined the structural model. The path coefficients and R squares for each dependent variable are shown in Figure 2. A summary of the hypothesis tests is presented in Table 4. All the hypotheses are supported. Need for information sharing is a significant predictor of behavioural intention to share information. In addition, the cost and benefit factors, including loss of knowledge power, image, and reciprocity, and pro-sharing norms also significantly affect intention to share information, which then influence actual sharing behaviour. Moreover, Need for Information Sharing has relatively larger effect on behavioural intention than loss of knowledge power, reciprocity and pro-sharing norms. This shows the importance of one's instinct in shaping behaviour. Instinct is a natural inclination and is likely to lead to certain behaviours. The other factors may affect behaviour as well.

We also compared a model without Need for Information Sharing with our research model which includes Need for Information Sharing. The R-square changed from 0.22 to 0.25. This change is significant with  $F(1, 2293) = 87.60$  and  $p < .001$ . This shows the unique significant contribution of Need for Information Sharing in predicting behavioural intention to share information.

Constructs	Cronbach's alpha	Composite Reliability	Average Variance Extracted
NIS	0.83	0.88	0.60
LKP	0.92	0.95	0.87
IMG	0.89	0.92	0.75
RCP	0.89	0.92	0.75
PSN	0.90	0.93	0.72
ISI	0.81	0.89	0.74
ISB	0.73	0.88	0.79

Table 1. Cronbach's alpha, Composite Reliability and Average Variance Extracted of the Constructs



Items	Correlations							Item Loading	
	IMG	ISB	ISI	LKP	NIS	PSN	RCP	Loading	T-value
IMG1	<b>0.87</b>	0.31	0.35	0.19	0.15	0.26	0.46	0.87	121.82
IMG2	<b>0.81</b>	0.27	0.25	0.19	0.05	0.21	0.32	0.81	62.25
IMG3	<b>0.91</b>	0.29	0.30	0.19	0.11	0.26	0.38	0.91	155.72
IMG4	<b>0.87</b>	0.31	0.32	0.17	0.14	0.30	0.44	0.87	113.20
ISB1	0.34	<b>0.91</b>	0.63	0.09	0.18	0.20	0.28	0.91	220.38
ISB2	0.26	<b>0.87</b>	0.54	-0.05	0.14	0.19	0.22	0.87	136.10
ISI1	0.36	0.67	<b>0.95</b>	0.01	0.27	0.31	0.36	0.95	327.50
ISI2	0.37	0.65	<b>0.95</b>	0.01	0.25	0.31	0.35	0.95	286.05
ISI3	0.12	0.33	<b>0.64</b>	-0.30	0.24	0.25	0.20	0.64	28.52
LKP1	0.19	0.02	-0.07	<b>0.92</b>	-0.20	-0.15	0.01	0.92	42.25
LKP2	0.21	0.02	-0.07	<b>0.94</b>	-0.20	-0.13	0.02	0.94	95.48
LKP3	0.21	0.04	-0.06	<b>0.92</b>	-0.19	-0.14	0.02	0.92	53.32
NIS1	0.03	0.12	0.21	-0.18	<b>0.70</b>	0.10	0.11	0.70	41.45
NIS2	0.14	0.15	0.23	-0.13	<b>0.78</b>	0.25	0.19	0.78	55.52
NIS3	0.04	0.11	0.20	-0.23	<b>0.78</b>	0.12	0.11	0.78	53.73
NIS4	0.12	0.17	0.26	-0.15	<b>0.84</b>	0.19	0.20	0.84	76.81
NIS5	0.16	0.15	0.21	-0.12	<b>0.76</b>	0.21	0.22	0.76	51.62
PSN1	0.34	0.24	0.32	-0.12	0.19	<b>0.84</b>	0.40	0.84	81.19
PSN2	0.26	0.20	0.29	-0.13	0.21	<b>0.90</b>	0.37	0.90	118.24
PSN3	0.20	0.15	0.26	-0.18	0.18	<b>0.88</b>	0.31	0.88	114.77
PSN4	0.26	0.16	0.28	-0.08	0.18	<b>0.84</b>	0.36	0.84	65.63
PSN5	0.18	0.16	0.26	-0.14	0.18	<b>0.77</b>	0.28	0.77	49.86
RCP1	0.38	0.26	0.33	0.04	0.20	0.31	<b>0.77</b>	0.77	59.30
RCP2	0.42	0.24	0.31	0.01	0.17	0.36	<b>0.90</b>	0.90	147.98
RCP3	0.42	0.22	0.29	0.02	0.17	0.36	<b>0.89</b>	0.89	109.60
RCP4	0.40	0.24	0.33	-0.02	0.21	0.39	<b>0.88</b>	0.88	116.84

Table 2. Correlations between Items and Latent Variables

	IMG	ISB	ISI	LKP	NIS	PSN	RCP
IMG	<b>0.87</b>						
ISB	0.34	<b>0.89</b>					
ISI	0.35	0.67	<b>0.86</b>				
LKP	0.22	0.03	-0.07	<b>0.93</b>			
NIS	0.13	0.18	0.29	-0.21	<b>0.77</b>		
PSN	0.30	0.22	0.34	-0.15	0.23	<b>0.85</b>	
RCP	0.47	0.28	0.37	0.02	0.22	0.41	<b>0.87</b>

Note: Diagonals represent the square root of the average variances extracted for each construct.

Table 3. Correlations between the Constructs

Hypotheses	Path Estimate	Standard Error	t-value	Significance	Supported
H1: NIS → ISI	0.18	0.02	7.77	<0.01	Yes
H2: ISI → ISB	0.67	0.01	45.40	<0.01	Yes
H3: LKP → ISI	-0.06	0.02	2.97	<0.01	Yes
H4: IMG → ISI	0.22	0.02	9.18	<0.01	Yes
H5: RCP → ISI	0.16	0.02	6.80	<0.01	Yes
H6: PSN → ISI	0.15	0.02	6.35	<0.01	Yes

Table 4. Summary of Hypothesis Testing

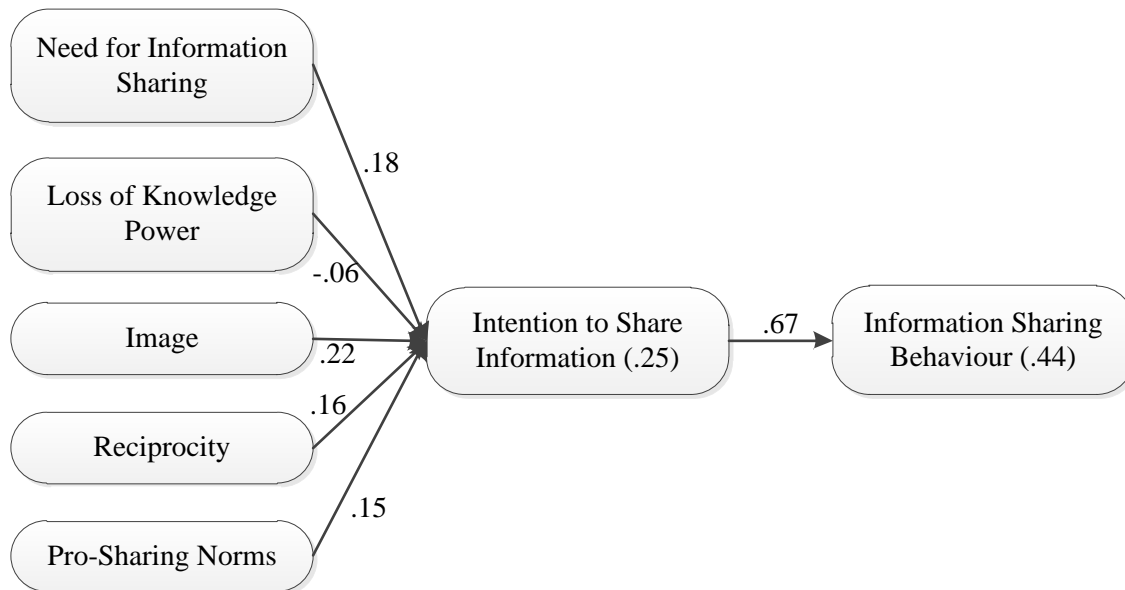


Figure 2. The Path Estimates and R Squares of the Model

## 6 DISCUSSION

The two main contributions of this study are: (1) it provides a unique biological perspective to study information sharing behaviours, and (2) it establishes a validated instrument to measure the new construct of Need for Information Sharing. The instrument development process follows a rigorous process recommended in the literature. We obtained a parsimonious 5-item instrument. The scale was rigorously tested and validated in a nomological network including cost and benefit factors, which showed a high degree of validity and reliability.

Current research mainly treats information sharing behaviour from the economic or social perspective. Thus, benefits and costs were used to evaluate sharing behaviours (Kankanhalli et al. 2005). As this study proposes and validates the innate nature of information sharing behaviour, further studies can build upon this to use alternative models to study this behaviour. This would provide additional insights to existing theories on information sharing. It would be interesting to examine how the instinct of information sharing evolves as a person grows from a child to an adult, and what factors can significantly influence innate sharing behaviour. For example, would oppressive social or political climates suppress the instinct to share information?

This paper also contributes to research methodology by creating and validating measures for the construct of Need for Information Sharing. Significant efforts have been put into developing the instrument with adequate reliability and validity. The significant results for all the hypotheses suggest adequate predictive validity and construct validity of the measurement. The instrument can be used for future studies to examine the links between antecedents and consequences involving information sharing behaviours.

This study shows the importance to study instinctive sharing behaviours in the real world. This would lead to future studies in ethology and psychology investigating the evolutionary root cause for the instinctive information sharing behaviour. We believe that understanding the causes of this innate need for information sharing is as important as understanding the consequences of the instinctive need on behaviour and other factors.

This study also challenges the fundamental utilitarian principle in economics that humans are rational and always maximize their own benefits. From the empirical results of our study and the cumulative scientific findings from evolutionary and behavioural psychology studies, we believe that the value of

instinctive sharing and cooperation in human nature may provide the building blocks for a whole series of alternative and modified economics theories and models to explain the world.

## References

- Adler, F. R. and Gordon, D. M. (1992). Information Collection and Spread by Networks of Patrolling Ants. *The American Naturalist*, 140 (3), 373-400.
- Anwar, Y. (2010). Do Kinder People Have an Evolutionary Advantage? Retrieved 18 November, 2010, from [http://www.alternet.org/health/145888/social\\_scientists\\_build\\_case\\_for\\_%27survival\\_of\\_the\\_kind\\_est](http://www.alternet.org/health/145888/social_scientists_build_case_for_%27survival_of_the_kind_est)
- Barreto, M. and Ellemers, N. (2002). The Impact of Anonymity and Group Identification on Progroup Behavior in Computer-Mediated Groups. *Small Group Research*, 33 (5), 590-610.
- Beach, F. A. (1955). The Descent of Instinct. *Psychological Review*, 62 (6), 401-410.
- Bearden, W. O. and Netemeyer, R. G. (1999). *Handbook of Marketing Scales: Multi-Item Measures for Marketing and Consumer Behavior Research*. 2nd Edition. Sage Publications, Thousand Oaks, CA.
- Blau, P. (1964). *Exchange and Power in Social Life*. John Wiley & Sons, New York.
- Bock, G. W., Zmud, R. W., Kim, Y. G. and Lee, J. N. (2005). Behavioral Intention Formulation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate. *MIS Quarterly*, 29 (1), 87-111.
- Brownell, C. A., Svetlova, M. and Nichols, S. (2009). To Share or Not to Share: When Do Toddlers Respond to Another's Needs? *Infancy*, 14 (1), 117-130.
- Cacioppo, J. T. and Petty, R. E. (1982). The Need for Cognition. *Journal of Personality & Social Psychology*, 42 (1), 116-131.
- Cacioppo, J. T., Petty, R. E., Feinstein, J. A. and Jarvis, W. B. G. (1996). Dispositional Differences in Cognitive Motivation: The Life and Times of Individuals Varying in Need for Cognition. *Psychological Bulletin*, 119 (2), 197-253.
- Cacioppo, J. T., Petty, R. E. and Kao, C. F. (1984). The Efficient Assessment of Need for Cognition. *Journal of Personality Assessment*, 48 (3), 306 - 307.
- Churchill, G. A. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, 16 (1), 64-73.
- Constant, D., Kiesler, S. and Sproull, L. (1994). What's Mine Is Ours, or Is It? A Study of Attitudes About Information Sharing. *Information Systems Research*, 5 (4), 400-421.
- Constant, D., Sproull, L. and Kiesler, S. (1996). The Kindness of Strangers: The Usefulness of Electronic Weak Ties for Technical Advice. *Organization Science*, 7 (2), 119-135.
- Cronbach, L. J. and Meehl, P. E. (1955). Construct Validity in Psychological Tests. *Psychological Bulletin*, 52 (4), 281-302.
- Davenport, T. H. and Prusak, L. (1998). *Working Knowledge: How Organizations Manage What They Know*. Harvard Business School Press, Boston.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology. *MIS Quarterly*, 13 (3), 319-340.
- Davis, F. D., Bagozzi, R. P. and Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, 35 (8), 982-1003.
- Doherty, A., Patterson, M. and Van Bussel, M. (2004). What Do We Expect? An Examination of Perceived Committee Norms in Non-Profit Sport Organisations. *Sport Management Review*, 7 (2), 109-132.
- Eastwood, A. (2010, 16 April). Revisiting Economic Man Retrieved 18 November, 2010, from <http://www.stwr.org/economic-sharing-alternatives/revisiting-economic-man.html>
- Eisenberg, N., Fabes, R. A. and Spinrad, T. L. (2006). Prosocial Development. In *Handbook of Child Psychology: Social, Emotional, and Personality Development* (Damon, W., Lerner, R. M. and Eisenberg, N. Eds.), vol. 3, pp. 646-718, John Wiley & Sons, Hoboken, N.J.
- Emerson, R. M. (1962). Power-Dependence Relations. *American Sociological Review*, 27 (1), 31-41.
- Fehr, E., Bernhard, H. and Rockenbach, B. (2008). Egalitarianism in Young Children. *Nature*, 454 (7208), 1079-1083.
- Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Addison-Wesley, Reading, MA.

- Gray, P. H. (2001). The Impact of Knowledge Repositories on Power and Control in the Workplace. *Information Technology and People*, 14 (4), 368-384.
- Green, G. I. (1989). Perceived Importance of Systems Analysts' Job Skills, Roles, and Non-Salary Incentives. [Article]. *MIS Quarterly*, 13 (2), 115-133.
- Hay, D. F. (1979). Cooperative Interactions and Sharing between Very Young Children and Their Parents. *Developmental Psychology*, 15 (6), 647-653.
- Homans, G. C. (1958). Social Behaviour as Exchange. *American Journal of Sociology*, 63 (6), 597-606.
- Jarvenpaa, S. L. and Staples, D. S. (2000). The Use of Collaborative Electronic Media for Information Sharing: An Exploratory Study of Determinants. *Journal of Strategic Information Systems*, 9 (2/3), 129-154.
- Kankanhalli, A., Tan, B. C. Y. and Wei, K.-K. (2005). Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation. *MIS Quarterly*, 29 (1), 113-143.
- Kollock, P. (1999). The Economies of Online Cooperation: Gifts and Public Goods in Cyberspace. In *Communities in Cyberspace* (Smith, M. and Kollock, P. Eds.), pp. 220-239, Routledge, London.
- Lashley, K. S. (1938). Experimental Analysis of Instinctive Behavior. *Psychological Review*, 45 (6), 445-471.
- Liszkowski, U., Carpenter, M., Striano, T. and Tomasello, M. (2006). 12- and 18-Month-Olds Point to Provide Information for Others. *Journal of Cognition and Development*, 7 (2), 173 - 187.
- Markus, M. L. (2001). Toward a Theory of Knowledge Reuse: Types of Knowledge Reuse Situations and Factors in Reuse Success. *Journal of Management Information Systems*, 18 (1), 57-94.
- Melis, A. P., Hare, B. and Tomasello, M. (2008). Do Chimpanzees Reciprocate Received Favours? *Animal Behaviour*, 76 (3), 951-962.
- Molm, L. D. (1997). *Coercive Power in Social Exchange*. Cambridge University Press, Cambridge.
- Moore, C. (2009). Fairness in Children's Resource Allocation Depends on the Recipient. *Psychological Science*, 20 (8), 944-948.
- Moore, G. C. and Benbasat, I. (1991). Development of an Instrument to Measure the Perception of Adopting an Information Technology Innovation. *Information Systems Research*, 2 (3), 192-222.
- Nahapiet, J. and Ghoshal, S. (1998). Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review*, 23 (2), 242-266.
- O'Dell, C. and Grayson, C. J. (1998). If Only We Knew What We Know: Identification and Transfer of Internal Best Practices. *California Management Review*, 40 (3), 154-174.
- Olson, K. R. and Spelke, E. S. (2008). Foundations of Cooperation in Young Children. *Cognition*, 108 (1), 222-231.
- Orlikowski, W. (1993). Learning from Notes: Organizational Issues in Groupware Implementation. *Information Society*, 9 (3), 237-250.
- Rakoczy, H., Warneken, F. and Tomasello, M. (2008). The Sources of Normativity: Young Children's Awareness of the Normative Structure of Games. *Developmental Psychology*, 44 (3), 875-881.
- Rheingold, H. L., Hay, D. F. and West, M. J. (1976). Sharing in the Second Year of Life. *Child Development*, 47 (4), 1148-1158.
- Seeley, T. D. (1995). *The Wisdom of the Hive: The Social Physiology of Honey Bee Colonies*. Harvard University Press, Cambridge, MA.
- Shedish, W. R., Cook, T. D. and Campbell, D. T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Houghton Mifflin, Boston.
- Sperber, D. and Wilson, D. (1996). *Relevance: Communication and Cognition*. 2nd Edition. Wiley-Blackwell, Oxford.
- Stone, E. F. (1978). *Research Methods in Organizational Behavior*. Scott, Foresman & Co., Santa Monica, CA.
- Straub, D. W. (1989). Validating Instruments in Mis Research. [Article]. *MIS Quarterly*, 13 (2), 147-169.
- Thibaut, J. W. and Kelley, H. H. (1986). *The Social Psychology of Groups*. Transaction Books, New Brunswick, NJ.
- Tomasello, M. (2009). *Why We Cooperate*. MIT Press, Cambridge.
- Tricomi, E., Rangel, A., Camerer, C. F. and O'Doherty, J. P. (2010). Neural Evidence for Inequality-Averse Social Preferences. *Nature*, 463 (7284), 1089-1091.

- Vallerand, R. J. (1997). Toward a Hierarchical Model of Intrinsic and Extrinsic Motivation. In *Advances in Experimental Social Psychology* (Zanna, M. P. Ed.), vol. 29, pp. 271-360, Academic Press, New York.
- Venkatesh, V., Morris, M. G., Davis, G. B. and Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27 (3), 425-478.
- Wade, N. (2009). We May Be Born with an Urge to Help Retrieved 18 November, 2010, from <http://www.nytimes.com/2009/12/01/science/01human.html>
- Warneken, F. and Tomasello, M. (2006). Altruistic Helping in Human Infants and Young Chimpanzees. *Science*, 311 (5765), 1301-1303.
- Warneken, F. and Tomasello, M. (2007). Helping and Cooperation at 14 Months of Age. *Infancy*, 11 (3), 271-294.
- Warneken, F. and Tomasello, M. (2009). Varieties of Altruism in Children and Chimpanzees. *Trends in Cognitive Sciences*, 13 (9), 397-402.
- Wasko, M. M. and Faraj, S. (2000). It Is What One Does: Why People Participate and Help Others in Electronic Communities of Practice. *Journal of Strategic Information Systems*, 9 (2/3), 155-173.
- Wasko, M. M. and Faraj, S. (2005). Why Should I Share? Examining Knowledge Contribution in Networks of Practice. *MIS Quarterly*, 29 (1), 35-57.
- Yamagishi, T. and Cook, K. S. (1993). Generalized Exchange and Social Dilemmas. *Social Psychology Quarterly*, 56 (4), 235-248.

## APPENDIX: SURVEY ITEMS

Construct	Item Wording and Code	Source
Need for Information Sharing (NIS)	<p>Information sharing is not my idea of fun. * (NIS1)</p> <p>I really enjoy a task that involves sharing information with teammates. (NIS2)</p> <p>Sharing new information with others does not excite me very much. * (NIS3)</p> <p>The notion of sharing information with others is appealing to me. (NIS4)</p> <p>I feel satisfaction after sharing much information with others. (NIS5)</p>	Developed based on Cacioppo & Petty (1982), Cacioppo et al. (1984), and Cacioppo et al. (1996)
Intention to Share Information (ISI)	<p>I intend to share information in the forum in the next three months. (ISI1)</p> <p>I expect to share information in the forum in the next three months. (ISI2)</p> <p>I would like not to share any information in the forum from now on. * (ISI3)</p>	Adapted from Davis (1989)
Information Sharing Behaviour (ISB)	<p>I have frequently shared information in this forum. (ISB1)</p> <p>What is your frequency to share information in this forum? (ISB2)</p>	Adapted from Davis et al. (1989)
Loss of Knowledge Power (LKP)	<p>Sharing information in this forum makes me lose my unique value. (LKP1)</p> <p>Sharing information in this forum makes me lose my knowledge that makes me stand out with respect to others. (LKP2)</p> <p>Sharing information in this forum makes me lose my knowledge that no one else has. (LKP3)</p>	Developed based on Thibaut & Kelley (1986), Orlikowski (1993) and adapted from Kankanhalli et al. (2005)
Image (IMG)	<p>Sharing information in this forum improves my image online. (IMG1)</p> <p>People online who share their knowledge in this forum have more prestige than those who do not. (IMG2)</p> <p>Sharing information in this forum improves others' recognition of me. (IMG3)</p> <p>When I share information in this forum, the people in the forum respect me. (IMG4)</p>	<p>Adapted from Moore &amp; Benbasat (1991)</p> <p>Adapted from Moore &amp; Benbasat (1991)</p> <p>Adapted from Green (1989)</p> <p>Adapted from Kankanhalli et al. (2005)</p>
Reciprocity (RCP)	<p>When I share information in this forum, I believe that I will get an answer for giving an answer. (RCP1)</p> <p>When I share information in this forum, I expect somebody to respond when I'm in need. (RCP2)</p> <p>When I share information in this forum, I expect to get back information when I need it. (RCP3)</p> <p>When I share information in this forum, I believe that my queries for information will be answered in future. (RCP4)</p>	<p>Developed based on Wasko &amp; Faraj (2000)</p> <p>Developed based on Yamagishi &amp; Cook (1993)</p> <p>Adapted from Kankanhalli et al. (2005)</p> <p>Adapted from Kankanhalli et al. (2005)</p>
Pro-Sharing Norms (PSN)	<p>Members are encouraged to be cooperative in this forum. (PSN1)</p> <p>Members are encouraged to build a harmonious environment in this forum. (PSN2)</p>	Adapted from Barreto & Ellemers (2002)

	<p>Members are encouraged to respect other members in this forum. (PSN3)</p> <p>Members are encouraged to acknowledge the efforts of other members in this forum. (PSN4)</p> <p>Members are encouraged to be open to conflicting views in this forum. (PSN5)</p>	<p>Adapted from Doherty, Patterson, &amp; Van Bussel (2004)</p> <p>Adapted from Kankanhalli et al. (2005)</p>
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\* denotes an reversed item.